**In Vitro Effects of Some Cations on Glutathione S-Transferase Enzyme Purified from Chicken Heart**

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**Abstract**

Glutathione S-transferase enzyme (GST; EC 2.5.1.18) is an important antioxidant enzyme in metabolism and takes part in reactions that enable the conjugation of glutathione with many metabolites that may cause toxicity. In this study, firstly, the GST enzyme was purified from chicken heart by homogenate preparation, ammonium sulfate precipitation and glutathione-agarose affinity chromatography.

Then, the inhibition effects of Ag+, Pb2+ and Na+ ions on enzyme activity were examined in vitro. Enzyme activity was determined spectrophotometrically at 340 nm by the method of Habig et al. (1974). This method was applied in all kinetic studies. In the kinetic studies, it was found that Ag+ (in the range of 0.1-0.7 mM), Pb2+ (in the range of 0.1-0.7 mM) and Na+ (in the range of 1-5 mM) cations caused inhibition on the enzyme activity. IC50 values were found by drawing % Activity-[I] graphs for these cations showing inhibition effects. IC50 values for Ag+, Pb2+ and Na+ were found to be 0.239, 0.283 and 1.725 mM, respectively.

**Key Words:** Glutathione S-transferase, Ag+, Pb2+,Na+, Inhibiton